

REMARKS

Before discussing the substantive issues raised by the PTO communication of 07/25/01, it will be noted that Applicants have endeavored to amend the claims hereof to overcome the formal objections, specifically against claim 9, and to more accurately focus the invention to patentably define over the cited references. Claim 3 has been canceled and the subject matter thereof incorporated into amended claim 1. Additionally, claim 1 was amended to clarify the significance of the use of multiple transducer elements. This will become clearer in the discussion regarding the several rejections. In any case, claim 1 now defines that the plural transducer elements, forming the transducer mechanism, are electrically arranged in parallel and electrically excitable to produce a high energy, narrow, radiation pattern of high energy impulses over a circular band between 2 and 3 degrees (claim 2). Further, the transducer mechanism is maintained within an oil filled medium and at a pressure essentially equal to the area in horizontal proximity to the transducer mechanism.

Turning now to the substantive matters of the PTO communication, the rejection of claim 9 under the provisions of 35 U.S.C. 112, second paragraph, having been overcome with the above amendment, claims 1, 2, 5 and 6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Bodine Jr. (No. 3,322,196). Applicants traverse the rejection insofar as the Examiner may continue to apply the reference to amended claims 1, 2, 5 and 6. Applicants take issue with the Examiner's characterization of Bodine Jr. and how it operates. It is submitted that Bodine Jr. use a single transducer element (22), whereas the present invention is directed to plural spaced apart transducer elements. The impulse pattern emitted by Bodine Jr. is not the narrow band as claimed herein. Rather, the impulse pattern of Bodine Jr. is quite broad, much like a highly angled fan, as viewed from the side, or in a figure "8". In contrast, Applicants' system uses plural transducer elements, whose impulse pattern is much like a fan with nearly flat or horizontal blades, arranged in parallel, that are excited in such a manner to get a very narrow radiation pattern to thereby concentrate power within a narrow beam in a horizontal direction to achieve greater penetration into the surrounding strata. Clearly Bodine Jr. does not teach this very significant step, notwithstanding the Examiner's assertion that "the transducer (of Bodine Jr.) can emit(s) pulses throughout the range of 2 to 3 degrees after it is energized at a varying

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frequency depending on the operation at hand, using a frequency modulator (54)." The frequency modulator of Bodine Jr. does not change the impulse pattern as proposed by the Examiner. It is thus submitted that the patent to Bodine Jr. does not anticipate claims 1, 2, 5 and 6, and that a withdrawal of the rejection is believed to be in order.

Claims 4 and 7 - 9 stand rejected under the provisions of 35 U.S.C. 103(a) as being unpatentable over Bodine Jr. (above) in view of Plambeck (No. 4,788,467). Applicants traverse the rejection as it may be applied to the amended claims 4 and 7 - 9. The patent teaches a plurality of transducer elements which are arcuately configured and therefore discontinuous, unlike that of the present invention. Further, while the patentee teaches the use of some kind of spacer member (54), it or they do not extend between adjacent said transducer elements. Further, the so-called casing (66) of the patent appears to be merely a housing to contain a fluid to dampen the motion of the several transducer elements, and not a system to maintain the transducer mechanism at a pressure essentially equal to the area in horizontal proximity to the mechanism irrespective of the depth of the mechanism within the casing. Again, another vital step of the claimed method is not taught by Plambeck or by Bodine Jr. Accordingly, it is believed that the combination of references do not teach the invention as now claimed in amended claim 4 and 7 - 9.

Finally, claim 10 has been added to further clarify the relationship of the respective transducer elements, namely, the incorporation of dielectric spacer members between adjacent transducer elements. The references do not teach such a feature.

The Examiner noted that the oath or declaration is defective in that one inventor, or his representative, failed to execute same. It is requested that the Examiner hold the requirement for correction in abeyance pending the finding of allowable subject matter.

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To the extent that the Examiner may feel a phone conference with the undersigned Agent to be beneficial to the prosecution of this application, he is invited to call at (850) 236-0548. Absent such a phone call, Applicants look forward to the Examiner's reconsideration of the claims and the allowance thereof.

Respectfully submitted,
Applicants

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Encl: Marked Up copy, P. 7

Clean copy, P. 7

Marked Up copy claims 1, 2, 9 (claim 3 canceled)

Clean copy claims 1, 2, 9 and new claim 10

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